Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Geometry CH 1 Project**

Project Description:

You will create a 3-D model of points, lines and planes in space. You will choose the materials that will represent points, lines, and planes in your model. Your model must be at least 4 inches in length, width and depth. Your model should not be more than 15 inches in length, width, or depth. Be sure to include your name somewhere on the model.

When your model is complete, you will use it to answer the questions that begin below.

Project Checklist:

At a minimum, your model must include the following:

* 3 planes: at least 2 of them must intersect
* Each plane must contain at least 3 non-collinear points
* 4 lines: 2 must intersect, 2 must be parallel, 2 must be skew (you can include more than 4 lines if you want)
* Each line must contain at least 2 points
* Every point must have a unique name, which should be clearly labeled on the model (such as A,B,C, and so on)
* One point should be between two other points

Rubric for Project:

The project will have a weight of 1 in the gradebook. Your project will be graded as follows:

* Planes – (3 included, 2 intersect) 10 points
* Lines – (4 included, 2 parallel, 2 skew, 2 intersect) 10 points
* Points – (3 non-collinear on each plane, 2 on each line, all labeled, 1 point between) 10 points
* Neatness and Creativity – 10 points
* Questions – 60 points

Questions:

Use your model to answer the following questions. You must write in complete sentences for short answer questions. You must use correct notation when naming points, lines, planes, and rays. You must name lines and planes using the points that lie on them.

*Short Answer: 5 points per answer*

1. What did you use to represent a plane? Explain how this is and is not a good representation of a plane.
2. What did you use to represent a line? Explain how this is and is not a good representation of a line.
3. What did you use to represent a point? Explain how this is and is not a good representation of a point.
4. In the questions below, I ask you to name non-collinear points in a group of 3 and non-coplanar points in a group of 4. Why did I choose 3 for non-collinear and 4 for non-coplanar?

*Fill in the Blank: 2 points per blank*

1. Plane \_\_\_\_\_ and Plane \_\_\_\_\_ intersect at \_\_\_\_\_.
2. The following lines are parallel: \_\_\_\_\_ and \_\_\_\_\_. The plane that contains them is Plane \_\_\_\_\_.
3. The following lines are skew: \_\_\_\_\_ and \_\_\_\_\_.
4. The following lines intersect: \_\_\_\_\_ and \_\_\_\_\_. The plane that contains them is Plane \_\_\_\_\_.
5. Name a group of 4 coplanar points: \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
6. Name a group of 4 non-coplanar points: \_\_\_\_\_\_\_\_\_\_\_\_.
7. Point \_\_\_\_ is between Points \_\_\_\_ and \_\_\_\_.
8. Name a pair of opposite rays: \_\_\_\_\_ and \_\_\_\_\_.
9. Name a group of 3 collinear points: \_\_\_\_\_\_\_\_\_\_\_\_.
10. Name a group of 3 non-collinear points: \_\_\_\_\_\_\_\_\_\_\_.